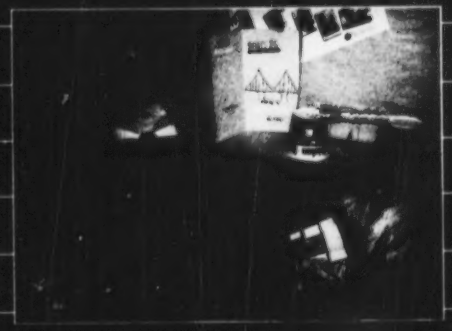
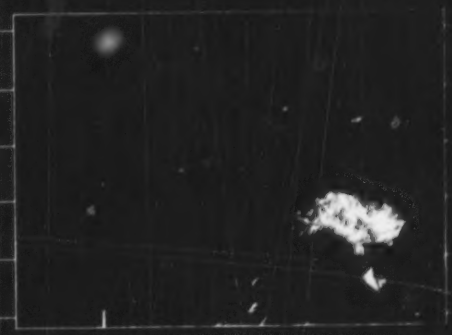
1989 - 1990 ANNUAL REPORT OF

THE SCIENCE INSTITUTE OF THE NORTHWEST TERRITORIES





NORTHERN SCIENCE TO SHARE

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The Science Institute of the Northwest Territories, succeeding the Science Advisory Board of the Northwest Territories, was incorporated under the Science Institute of the Northwest Territories Act in 1984.

The Science Institute's mandate is to assess the existing scientific, engineering and technological resources of the Territories, and to develop programmes for the maturation of these resources so that the social and economic goals of the people of the Northwest Territories may be realized.

Directives are established by a Board of seven to thirteen members appointed by the Minister Responsible for the Science Institute. The majority of these members must be resident in the Northwest Territories.

To carry out the Board's directives a staff of seventeen, led by an Executive Director, are employed by the Science Institute. Current programmes include Scientific Services, Science Advisory Services, Information and Education, and Technology Development.

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Top left, Centre, Top right; Laura McCulloch, Science Institute of the Northwest Territories.
Bottom left, Bottom right; David Sherstone, Science Institute of the Northwest Territories.

Readers of the Report are encouraged to duplicate it and forward it to colleagues.

RECYCLED PAPER

Dedication:

Dr. James M. Harrison CC, former Chairman of the Science Institute and previously a Science Advisory Board Member, died suddenly in July of 1990. Dr. Harrison was an internationally respected geologist and an internationally recognized representative of the Canadian scientific community. He was created a Companion of the Order of Canada for his geological research and for his work with the United Nations Educational, Scientific and Cultural Organization.

"With the death of Dr. Harrison northern people have lost a great friend and dedicated supporter. He truly cared for people and nurtured their ideas. We are so fortunate to have had a person of Jim's international stature volunteering his services to our Institute."

John H. Parker,
Chairman

Northern Science to Share

Science and technology. Research and Development. You hear these two phrases frequently in the media and conversation. Policy makers ponder the future of these because S & T and R & D are intimate parts of the solution of social and economic problems. But what are science and technology? What are research and development?

Simply, science is the state of knowing. Technology is applied science, or knowledge put to use to achieve a practical purpose. Both science and technology require a process or method; research and development.

Research is investigation or experimention aimed at discovering and interpreting facts about the world around us. The most tried and true method of research has been observation and recording. Traditionally observation has been done using the five senses. Generation after generation has 'recorded' their observations by being sure that their children served as apprentices. They gained first hand the knowledge required to meet personal needs and those of their families in their home environment, wherever it might be.

More recently the formal 'scientific method' has evolved such that observations are expanded by use of technical equipment and/or by working in a controlled or laboratory environment. Recording has meant writing down observed data or using technical recording equipment such as audio/visual equipment and electromechanical recording devices. Both the traditional and formal scientific approaches are valid and have their place in research.

Development is the process by which knowledge is acted upon to make a usable product. The product may be a good or service for market, or a processed body of knowledge which makes it easier for government or other organizations to deliver a service to people.

Science and technology are developed by people, for people. Northern science and technology must involve the process of sharing to benefit all territorial residents, other Canadians and our international neighbors. The Science Institute of the Northwest Territories is and will continue to develop and process *NORTHERN SCIENCE TO SHARE*.

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The Science Institute of the Northwest Territories gratefully acknowledges the receipt of a donation of Arctic Journals to the Iqaluit Research Centre from Dr. A.W. Mansfield of Ottawa. Corporate contributions were made by Pacific Metals, and the Northwest Territories Power Corporation. The Science Institute of the Northwest Territories is a non-profit corporation and welcomes donations of funds or services in kind.

Remarks of the Chairman and Executive Director

"Science and its application through technology, represents one of the great expressions of mankind. Every individual in the world is affected to some extent by aspects of this field of human endeavour. Every country requires trained scientists and technologists to assist with its overall development, particularly social and economic development, and to help improve the quality of life for its citizens."

UNESCO Sourcebook for Out-of-school Science and Technology Education

A natural source of wealth, information and expertise. A foundation for our future. These are the human resources of the Northwest Territories. Scattered throughout federal, territorial, and provincial government departments, social and cultural organizations, schools and families lies an unprecedented body of scientific knowledge. The Science Institute of the Northwest Territories has accepted the challenge of nurturing and developing that body so that our society may achieve its social and economic goals. Through our programmes, information to strengthen our northern scientific community is being shared.

The Science Institute touches the lives of researchers, inquisitive citizens, school children and those using science and technology in their business and work. Our diverse population, which is comprised of over one third Inuit and about one quarter Dene and Métis, is growing at a rate that is over twice the national average. To properly serve the people of the Northwest Territories, we are making long term investments in the infrastructure, education and development of human resources in the north.

Canada is not keeping pace with the rest of the world in educating engineers, scientists and technologists to meet its needs. We, in the north, can do our part by encouraging scientific and technological training among residents. Northern citizens have true insight into northern needs. Our children are growing up in times of rapid change. These young people are the future decision-makers, scientists and technologists. The Institute is helping to ensure that their innate curiosity grows and thrives.

Northern physiography presents a challenge. The land mass of the Northwest Territories is one third that of Canada. In fact a full seventy-five percent of Canada lies within Arctic and sub-Arctic climates. The Canadian northern border is the longest cold-ocean border in the world. With recognition of these facts, the Science Institute is playing a leading role in developing northern research. Our three Research Stations in Iqaluit, Igloolik and Inuvik are continuing to serve both the scientific community of the North and the people whose lives may benefit from local research. The Institute is also embellishing its Technology Development Programme.

The Science Institute administers a Medical Research Trust Fund derived from financial support from Consumer and Corporate Affairs Canada. Under this Fund, an Injury Research and Prevention Project is being supported and a Midwifery/Community Birthing Project is being reviewed.

The broadening of programmes of the Science Institute of the Northwest Territories requires strong human resources from within. Dr. Robert Janes, the first Executive Director of the Science Institute, created a dynamic organization which quickly gained the respect of those with whom the Institute associated. In July of 1989, Dr. Janes left the Institute to become Director of the Glenbow Museum in Calgary. We wish him well.

Mr. Douglas Heyland succeeded Dr. Janes in August of 1989. Research on geese in the eastern Arctic and northern Quebec, brought Doug to the North with the Quebec Wildlife Service. Doug also served with Parks Canada and the Environmental Protection Service. Most recently he was Head of the Technology Transfer Programme at the Canada Centre for Remote Sensing, a Branch of Energy, Mines and Resources Canada. Doug, his wife, Joan, and his family are now enjoying life in Yellowknife.

Mrs. Yvonne Leonardis, Manager of Financial and Administrative Services, joined the Institute in May of 1989. Yvonne has given direction to the Institute's growth with respect to expanding the headquarter's office facilities, negotiating administrative and contribution agreements with the Government of the Northwest Territories, and introducing new computer financial management and wordprocessing systems. A paper reuse and recycle programme has been established. Increasing the efficiency of the Science Institute with a limited staff and budget is a challenge Yvonne has helped us meet.

Mrs. Jeanne Gagnon, Executive Secretary and Mrs. Elaine Riddell, Clerk/Secretary provided strong support throughout the year at the Yellowknife Headquarters. A second clerk/secretary position was staffed by casual employees.

With the strong convictions of all Institute Board Members and staff, the communication goal of the Science Institute is being reached. N.W.T. residents are using Science Institute resources to acquire scientific and technological information. This assists them in making responsible decisions which affect, not only their own lives, but the lives of others in our global polar community.

The development of the northern scientific community requires further coordination and collaboration. To do this the Institute participates in numerous committees and workshops territorially, nationally and internationally. As Science Advisor to the Government of the N.W.T., the Executive Director attends the Council of Science and Technology Ministers. Within this very active role, Mr. Heyland has assisted in drafting a plan to advance the pace of Science and Technology in Canada through the 1990's and beyond. The plan is now under review by governments, academics, institutes and the private sector. The main thrust of the plan is the need for cooperation among all sectors of the economy.

The Executive Director also sits on the Arctic Contaminants Technical and Policy Advisory Committee, the Northern Training Programme Adjudication Committee, the N.W.T. Sustainable Development Group, the GNWT Remote Sensing Steering Committee, and the International Arctic Science Committee. While committee work is very demanding, it emphasizes sharing knowledge and ideas among all those with scientific interests in the north. This cooperation is not yet ideal and must continue to expand.

Through the development of our Information and Education, Scientific Services, Science Advisory Services and Technology Development Programmes, cooperative growth is occurring. This annual report will explain more ways in which the Science Institute of the N.W.T. is extensively promoting "Northern Science To Share".

John H. Parker,
Chairman

J. Douglas Heyland,
Executive Director

Members of the Board of Directors

During this fiscal year the eight Member Board of Directors, led by Chairman John H. Parker, met twice. The first meeting, held in Inuvik in October, included a description of the National Research Council's Industrial Research Assistance Programme (IRAP) by Mr. Andrew Gilliland. Mr. Gilliland is the provincial IRAP coordinator for Alberta and the Northwest Territories. The second meeting was held in Yellowknife in February.

Two Members of the Board have recently completed their terms of office.

Dr. Ernie Pallister, of Pallister Resource Management Limited in Calgary, brought to the Board considerable expertise from his early involvement in geophysical surveys and oceanographic research in Arctic Canada. Dr. Pallister has also been chairman of the Arctic Institute of North America, a board member of the Husky Oil Petroleum Resources Committee Foundation and a member of the Research Advisory Committee of NOVA/Husky Research Corporation. He played an instrumental role in establishing C-FER (Centre for Frontier Engineering Research). Dr. Pallister had completed six years of service which bridged the change from the Science Advisory Board to Institute status.

Mrs. Elizabeth Crawford, born and raised in Fort McPherson, has been teaching school in the Northwest Territories for twenty years. She is currently at Sir Alexander Mackenzie School in Inuvik. As a member of several boards and committees, Mrs. Crawford has contributed extensively to the Dene Cultural Institute, the Inuvik Dene Band, the Inuvik Housing Appeals Board and Delta House Committee. Mrs. Crawford completed her second term in mid-August of 1990.

Mr. John H. Parker, OC, former Commissioner of the Northwest Territories, is the current Chairman of the Board. He succeeded Dr. James Harrison in March of 1989. Mr. Parker came north in 1951 after graduating in engineering geology from the University of Alberta. In 1959 Mr. Parker began his political career as a councillor and then mayor of Yellowknife. After serving on the Advisory Commission on the Development of Government in the N.W.T. Mr. Parker was appointed Deputy Commissioner of the N.W.T. in 1967 and Commissioner in 1979. He retired from that position in 1989.

Mr. Parker is also chairman of the Arctic Institute of North America and a member of the board of the NWT Power Corporation, the Aboriginal Order of Canada and the Association of Professional Engineers of Alberta.

Mr. Bob Hanson, president of R.L. Hanson Construction Limited of Iqaluit, is Vice-Chairman of the Board. Mr. Hanson has contributed to community development in the N.W.T. since coming to the Baffin in 1964. In Iqaluit he has served as Deputy Fire Chief, Coroner, President of the Royal Canadian Legion, Deputy Mayor and President of the Rotary Club. Mr. Hanson is chairman of the Board of Governors of Arctic College and chairman of the Executive Committee of the College.

Ms. Joanne Barnaby, Executive Director of the Dene Cultural Institute, is active in Native affairs. She has participated in the MacKenzie Valley Pipeline Inquiry, developed a Community Development Training Programme for the Dene Nation and been a key player in land and water management and devolution issues.

Mrs. Sally Kusugak has always brought enthusiasm to youth groups and other community organizations that she has worked with. The Inuit Silattuqsarvingat in Eskimo Point, the Inuit Cultural Institute and CBC Northland Television have all benefited from her extensive knowledge of the Inuit lifestyle.

Dr. Brian D. Postl, Head of the Department of Community Health Sciences at the University of Manitoba and the Health Science Centre, is actively involved in the research and development of community health programmes in northern Manitoba and the Keewatin. As president of the Canadian Society for Circumpolar Health, Chairman of the Medical Council of Canada's Sub-Committee in Preventive Medicine and Community Health, member of the International Advisory Committee for Congress on Circumpolar Health, Dr. Postl contributes to the Science Institute substantial insight into the medical research needs of the Territories.

Dr. Kaye L. MacInnes is an environmental scientist in the Land Resources Division of the Department of Indian and Northern Affairs. She works on a wide variety of environmental protection issues predominantly involving the minerals and oil and gas industries. Much of her current research is on permafrost and revegetation. Dr. MacInnes holds Bachelor's Degrees in Science and Outdoor Education from Queen's University, and Natural Sciences and Conservation Education from Cornell University. She also completed a doctorate in plant ecology from the University of Western Ontario. She is a Director of the Royal Canadian Geographical Society, and a member of the Canadian National Committee of the International Permafrost Association. She has previously been a Director of the Canadian Nature Federation and the Canadian Botanical Association. Dr. MacInnes has conducted research in the North since 1964 and has resided in Yellowknife since 1977.

Our Members welcome input from all residents of the Territories who have an interest in Science and Technology.

Photo: The Science Institute

A fond farewell to Bob Janes, former Executive Director of The Science Institute.

Information and Education

Photo: The Science Institute

Encouraging youth ... out future is bright.

Many people contact the Science Institute. The Institute contacts many people. Such is the essence of sharing. This sharing is growing as more become aware of the implications of science in our daily lives. However the science literacy of Canadians and northerners is not what it should be. Student knowledge of careers in the sciences is limited. Technology is perceived to be only a world of computers. If our society is to become one which solves its own problems, our appreciation of science and technology must become much more vital.

Future decision makers, future scientists and future technologists need facts and information, a spirit of inquiry, problem solving skills, and ethical and social values. For this reason the Information and Education Programme has two foci: the effective communication of activities and societal concerns involving science and technology, and the development of enrichment and out-of-school educational opportunities to promote an interest in science. Our scope is broad. Our programme is constantly developing. Part of our ongoing activities is monitoring the effectiveness of programmes offered. Your input is welcome.

During April through June of 1989, the Programme was managed by Mrs. Candace Savage. Candace promoted the Science Fair and cross-cultural components of the Institute programmes. For the remainder of the year, Mr. Michael Sharpe significantly increased the public awareness of science in the north through the production of a number of documents on various scientific activities in the North. Copies of these are available through the Institute.

Education Projects

Science Fairs have become popular in the N.W.T. Teachers and students use our science fair resources which include: "Why Do Walruses Turn Pink" kits; "Science Alive", an ideas and information document on fairs; and "Dial-an-Expert", a collect call information service. The Institute provided display boards to thirteen schools who ran a Science Fair for the first time this year. Two students from Inuvik travelled to the national Science Fair in Windsor.

For three weeks in November present and future Yellowknife astronomers gazed at the stars in the warmth of a mobile planetarium. The Mobile Astronomy Programme (MAP) is produced by the Edmonton Space Sciences Centre. The project was sponsored by the Science Institute, with assistance from Northwest Transport and NWT Air.

Going Fishing, a cross-cultural science camp for students from Rae/Edzo and Yellowknife, was held in June of 1989 near Rae. The purpose of the camp was to introduce native and non-native children to two different and interesting ways of looking at the environment. Participants learned to use microscopes to identify the sex, species and age of fish. As well they studied details of the aquatic environment. Traditional techniques of tanning hides, cleaning and dressing fish and smoking fish and other meats were observed and practiced. Students also learned knot tying, how to fire pottery, survival aspects of living in the bush and some elementary Dogrib. The camp was supported by funds and personnel from the Yellowknife School District No.1 and the Departments of Education, Renewable Resources and Culture and Communications. Over the five days

friendly relationships grew. The students went home with a strong feeling of respect for elders, our northern environment and each other.

During the year teachers, parents and educators attended a workshop held in conjunction with Arctic College on science in early childhood education.

Information Projects

Simply Science is comprised of 200 newspaper or radio scripts on a variety of northern science topics from pingos to tuberculosis. Scripts have been broadcast in Inuktitut and English across the north by CBC North, Iqaluit. CBC, Rankin Inlet and Ottawa, as well as CKNM, Native Broadcasting also use the scripts. The first one hundred of the scripts have been transferred to computer disks for easier use by newspapers.

NWT Science Update, an eight page newspaper supplement in English and Inuktitut, was issued in April. From this issue conscientious consumers learned how to reduce, reuse, and repair to cut down on waste; make paper; and prepare effective substitutes for hazardous cleaning agents. Readers learned about acid rain, remote sensing and other environmental issues and technologies.

Concern over the military's proposed low level flight operations centre for Yellowknife prompted a computer-based literature search to compile lists of relevant articles and studies from scientific journals. This search was done with the assistance of the government librarian. The Dene/Metis secretariat has now assembled an extensive list on the environmental and health effects of low level flights, using the Institute's document as its reference source.

Photo: The Science Institute

Between generations and cultures northern science is shared.

Science Advisory Services

People are the scientific vehicle of the north. The Science Institute acknowledges the potential and contribution of all people. This is reflected in the management of the Science Advisory Services Programme.

In August of 1989, Mrs. Anna Buss, Science Administrator, replaced Ms. Laurie Novakowski. Anna, a social scientist, believes that tolerance and learning from others are the keys to making a better world.

The Programme has been restructured to meet the goals of the Institute in addressing the changing needs of scientists and all northerners. Programme activities are focusing on networking to meet the challenge of coordination and communication, the need to nurture science to promote well being in our northern society, and the merit of the cross-cultural transfer of knowledge and understanding to benefit all people in the Northwest Territories.

Scientific Licensing
Licensing of scientific researchers, an Institute mandate under the Scientists Act of the N.W.T., continues to be streamlined to make the procedure less cumbersome. In 1989 one hundred and sixty-six licences were issued.

Because licensed researchers are obliged to submit summary reports of their work to the Institute, a significant body of up-to-date research information is accumulated at the Institute. In conjunction with the Information and Education programme, accessing this information is becoming easier.

To coordinate licensing efforts further, a rudimentary information sharing network with other Territorial and federal licensing bodies has been established.

National Health Research and Development Programme (NHRDP) North of 60
This programme was developed jointly with the Government of the Northwest Territories Department of Health and is sponsored by Health and Welfare Canada.

The purpose of the programme is to encourage and fund health-related research in the Territories.

A Health Priorities Workshop was held in Yellowknife in June of 1989. The workshop brought together participants from the Northwest Territories and other parts of Canada who represented communities, health boards, native organizations, women's groups, cultural institutes, the GNWT Departments of Health, Education, Social Services, Municipal and Community Affairs, universities, northern researchers, the Science Institute and northern health-related agencies.

People shared ideas and set northern-identified priorities on health research. Participants stressed that increased northern involvement in health research, health care, and health practices, must be realized before the people of the North can attain the best possible physical, emotional, mental, social and spiritual well-being. The workshop proceedings were compiled by the Science Institute and the GNWT Department of Health in a document "Health Research North of 60 Workshop Final Report". Copies are available from the Science Institute or the Department of Health.

An NHRDP North of 60 committee was formed following the workshop. The Science Institute sits as a non-voting member on the panel which adjudicates applications for funds. The Science Administrator and the Executive Director attended the first review panel meeting in Whitehorse in January at which twelve submissions were reviewed. The Science Administrator is the Institute's representative on this committee.

Ministerial Committee on Traditional Knowledge
This committee is coordinated by the GNWT Department of Culture and Communications. The purpose of the committee is to seek ways in which government and non-governmental organizations can work together to document traditional knowledge and to ensure that it is applied in the government and other agencies.

The Science Administrator represents the Institute on this Committee which first met in February. The Committee's Final Report will be presented to the Legislative Assembly by the Minister of Culture and Communications prior to March 31, 1991.

The Science Institute continues to recognize traditional knowledge as an integral part of the northern scientific community. This is demonstrated by its cross-cultural Information and Education projects, extensive community participation by Research Centres, and the encouragement given to researchers to seek out local knowledge and resources.

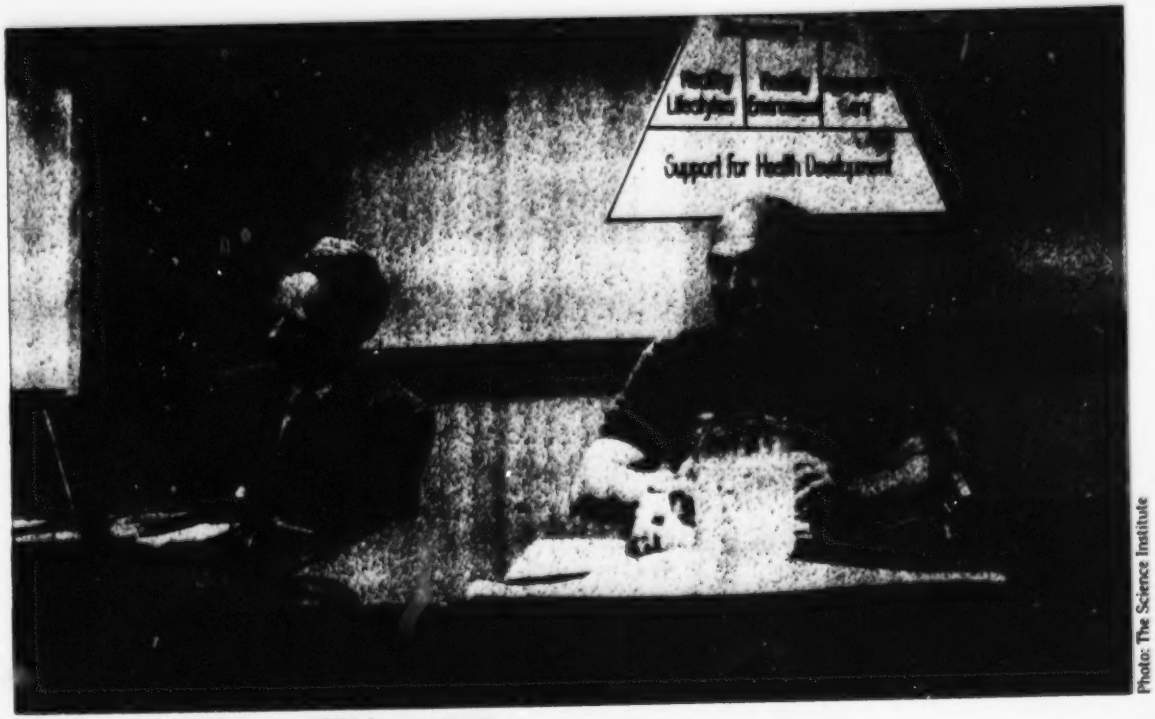

Photo: The Science Institute

A healthy future for Northerners ... NHRDP focuses concerns.

Technology Development

The quality of life of northern citizens is improving through technology. The dynamic and diverse nature of the NWT business community is evidenced by the myriad of goods and services becoming available in our domestic marketplace. Blending traditional with modern product lines of food, arts and crafts and clothing shows a desire by northern entrepreneurs to enhance the northern economy. There is determination by local innovators to develop goods which meet criteria of durability and economic-viability imposed upon product design by the realities of the harsh northern environment and large distances. People are driving our Territorial economy forward while improving our quality of life.

The Science Institute is enthusiastically supporting these endeavours by providing a strong technological resource base. Limited time, funding and access to appropriate scientific and technological information can restrict northern business development. Through funding provided under the National Research Council (NRC), the Institute delivers the NRC's Industrial Research Assistance Programme. This Programme, begun in the Institute in February of 1989, has been renewed for a second year.

The IRAP is managed by Mr. Craig d'Entremont, Industry Technology Advisor. Having widespread northern small community experience in economic development, Craig fully understands the challenges which face northern businesses. As a biologist, he is very aware of the sometimes unforgiving environmental conditions in the Arctic and sub-Arctic; "sustainable development" is not just a token catch phrase to Craig.

The Science Institute recognizes that a prosperous business must be community-based and acceptable to northern residents but, at the same time, one which is willing to expand. Northern enterprises are realizing that Canada's north is only one small part of a global market. Problems facing northern industry can be dwarfed by the opportunities.

By participation in workshops, such as Science and Technology in Regional and Northern Development, and committees such as the Economic Development Agreement and the Canadian Aboriginal Economic Development Strategy, the Science Institute's perspective on northern business is well rounded.

To increase further the awareness of northern businesses to the opportunities of technology use, regular visits to communities to speak with municipal and Band councils, Hunters and Trappers Associations, and Chambers of Commerce have been made. A series of technical seminars on topics such as building science and permafrost engineering is being developed in conjunction with the NRC's Institute for Research in Construction.

Industrial Research Assistance Programme
NRC has been helping Canadian industry for greater than 65 years to increase the calibre and scope of industrial research and development. The best available technologies (BAT) are offered to small and medium-sized businesses through the IRAP. Businesses are put in contact with other Canadian services such as science and engineering expertise in government laboratories, specialized research centres, universities and consulting engineering companies. The IRAP also provides some financial support for businesses which meet specific criteria.

Inquiries regarding leading edge technologies in the construction industry included interests in dome building design, space frame foundations and the use of fibre optics in building design. Transportation technology requests concerned ice bridge construction, the improvement of road bed durability and dust control. Other industrial and commercial processing information requests were about exotic wool processing, eider down processing, ocean and wildlife farming, and computer applications from desktop publishing to inventory control. Solar and other alternative energy strategies, and the reuse of rubber, glass and other materials were popular environmental concerns.

Technical advice was provided to specific food industries about the expansion of product lines, the extension of shelf life, portable abattoirs and hide dehairing technologies and fishing technologies. In the construction industry, framing and heating technologies were researched. In some small community enterprises, consultants were hired to assess needs in computer-assisted applications.

Funded projects included Baffin Island Canneries, Iqaluit; Iqaluit Enterprises; Independent Construction Management, Yellowknife; West Baffin Eskimo Cooperative, Cape Dorset and Toronto; Treeline Trappings, Yellowknife; Thurber Consultants, Yellowknife; and Aero Arctic Helicopters, Yellowknife.

Waste Management
Acting upon a request from Ecology North, the Institute procured funding to study the feasibility of recycling in the NWT. Private sector commitments were secured to provide equipment to establish recycling in Yellowknife.

Where to Next?
Polar research and development is defined by a common technology rather than a common product line. In the past costly mistakes have resulted from the introduction to the north of products and services that have not been tested in isolated and extreme cold environments. For these reasons, in July and August of 1989, the Science Institute of the NWT drafted the terms of reference for a feasibility study to consider an "International Cold Environment Laboratory".

Science Council Canada, in its production "Harnessing Science and Technology in Cold Regions", stated that "The proposal by the Science Institute of the Northwest Territories and the Government of the N.W.T. for a Technology Development Centre with cold-climate testing facilities is an important first step..." in establishing a long-term research and development community in the north.

The Institute completed a feasibility and market potential study for a cold environment testing facility. Potential users were identified. The existing infrastructure of the Institute and other scientific stations in the north have been investigated to determine the best development strategy for the Laboratory. The Science Institute is proceeding with a search for a manager for an expanded Technology Development Programme. Through this programme sustainable development in the NWT will be encouraged. Northern industrial and commercial research will be supported from idea to market.

Scientific Services

Mr. David Sherstone, Director of Scientific Services, has ensured that the Science Institute continues to keep abreast of research developments elsewhere in Canada and that others are also kept informed of the Institute's activities. At the Polar Continental Shelf Project (PCSP) annual planning meetings in Ottawa in November, he presented the new initiatives of the Institute, outlined changes in the licensing procedures and enumerated upgrades to the Research Centres.

At the "Role of the Circumpolar Universities in Northern Development Symposium" in Thunder Bay in November, Mr. Sherstone presented a paper, "Canadian University Researchers in the Northwest Territories: Problems and Challenges."

From January to mid-February of 1990, Dave was seconded to act as the Director of the PCSP in Ottawa. This experience proved invaluable in gaining an understanding of the scope and priorities of the PCSP to support Arctic science and how the PCSP base camps and the Institute's Research Centres could best work together.

A network of resident researchers, visiting researchers and other organizations involved in science in the Canadian north is rapidly developing to benefit all northerners. The Institute's three Research Centres in Iqaluit, Igloolik and Inuvik play a leading role in developing northern, community-based research by providing training and other scientific services for Territorial residents. Use of the Centres has increased substantially in the past year.

Individual, university, government, and private industry researchers are finding that the use of the Science Institute's Centres greatly enhances their studies. Scientific and technical support including accommodation, logistical assistance, off-road vehicle and radio use, laboratory facilities, workshop space, northern reference libraries, computer access and community liaison continue to grow.

Scientists in each of the Centres are collecting and recording social, physical, geological and biological data. These data can then be interpreted and used by politicians, bureaucrats, economists and industrialists throughout the Territories, Canada and other circumpolar nations. Local and regional promotion of researcher accomplishments are publicized via radio and television interviews, public meetings and presentations so that an increase in the sharing of scientific knowledge with resident northerners can occur. The staff of the Centres are helping to facilitate this transfer of information.

Please note that researchers using the facilities are required to be licensed through the Science Institute.

The Scientific Services directorate produces an "Annual Review of Research Centre Operations." Copies of the most recent issues are available upon request.

Iqaluit Research Centre

In its first full year of operation under the Scientific Services programme, support to researchers and local groups has increased tremendously. The Iqaluit Research Centre is now open year-round with a full time staff of two and a regular budget.

This strengthening of technical and information resources has allowed the Centre to become a pillar in the northern scientific community.

Mr. Bob Longworth, the Centre's manager, firmly believes that knowledge is power. Information and education programmes at the Centre are making more recently acquired knowledge available to the people of Nunavut. Centre staff hosted and were interviewed for more than thirty-five radio programmes. Centre personnel presented weekly editions of Simply Science which were broadcast throughout the N.W.T. and northern Quebec.

"Aqsarnit", an Inuktitut television science series was written and presented by Paul Irngaut. Paul was hired as a technician in April of 1989 after completing a sixteen month Northern Careers Training programme at the Igloolik Research Centre.

The Centre also works closely with the Environmental Technology Programme of Arctic College. Centre staff were consulted regarding scientific components of the new Baffin curriculum of Piniaqtavut. School groups have toured the facility and examined collections of local fossils and arctic marine species. Centre staff have acted as judges and information sources for teachers and students in Science Fairs.

The Iqaluit Centre, situated on the Arctic coastal tundra and accessible to Arctic marine habitats, has serviced a wide range of scientists this year. Paleoenvironmental studies, Inuktitut linguistics, arctic marine ecology, contaminants, waste management, legal system studies and climatic monitoring are some of the diverse subject areas investigated.

A reading room, containing general science reference texts, books of northern science interest and periodicals and journals, is rapidly expanding. An IBM compatible computer with software has been added to assist researchers. Equipment acquisitions are increasing. Parcols, a framed tent structure, have been used to expand summer accommodation. Workshop space has also expanded.

Igloolik Research Centre

This Centre, under the management of John MacDonald, lends considerable support to collecting and recording Inuit language and cultural knowledge. Emile Imaruittuq of Igloolik, sponsored by the Inuit Cultural Institute, is using the Centre facilities to conduct lexical research towards the compilation of a major Inuktitut Inter-dialectal Dictionary. The Igloolik Oral History Project, now in its third year, is being carried out by the staff of the Centre with funding from the Science Institute and the GNWT Department of Culture and Communications. Material gathered through this programme is deposited at the archives of the Prince of Wales Northern Heritage Centre in Yellowknife.

A major health and fitness study of the Iglulingmiut, on the long-term effects of living in a modern Arctic community, is being conducted by Dr. R.J. Shepard and Dr. A. Rode of the University of Toronto. Physiological tests conducted in Igloolik in 1970-71 and 1980-81 are being repeated.

The Centre's facilities supported a graduate level field course in Arctic Marine Biology through the University of Copenhagen and McGill University.

Regional weather and seismographic stations are maintained under contract for Environment Canada and the Department of Energy, Mines and Resources respectively. Significant recordings from both the Iranian and San Franscisco earthquakes were noted.

In 1987-88 Inuit knowledge and southern technology were combined to design and construct a fibreglass floe-edge boat. In March of 1990 the boat was exhibited at the Globe 90 Trade Fair in Vancouver as an example of successful cultural adaptation to serve local needs.

Training of staff continues. Leah Otak successfully completed training for the position of Operations Manager. She will replace George Qulaut during his 1990-91 leave of absence.

Sarcpa Lake, a summer field station on the Melville Peninsula, is operated under the auspices of the Igloolik Centre. This station is ready for full capacity operation. A new frame/plywood warehouse has been erected as part of the ongoing renovations to the facility.

Inuvik Research Centre

After twenty-six years of service with the Centre, both as Operations Manager with the Inuvik Scientific Resource Centre and as Manager with the Science Institute, John Ostrick retired in November of 1989. Maurice McRae, Senior Technician, with the Centre retired in October of 1989 after sixteen years of service.

John was known and respected by every researcher in the Mackenzie Delta. He provided stability and continuity of research support throughout his service in Inuvik. "Moe" McRae gave the Centre excellent technical expertise, maintaining all of our vehicles, vessels and lab and field equipment. Both John and Moe and their families have moved to southern Canada since retiring and the Institute wishes them well.

Gary White, current Manager of the Inuvik Research Centre, is broadening the opportunities for Northerners to learn more about science and scientific research in the Mackenzie Delta and Beaufort regions. Gary has written articles on such topics as research in the western Arctic, geology of the Delta, cosmic ray research, the Aurora borealis and pingos. These have been published in the Inuvik Drum.

Peter Clarkson, GNWT Renewable Resource biologist, and Gary founded the Northwinds Science Club which hosts popular talks by local and visiting researchers. Talks are attended by the general public and the local scientific community.

The youth of the Delta are being encouraged to pursue careers in Science. An information booth on geosciences and lectures on geology as a career were presented for school career days. Elementary and secondary school students have been taken on geological field trips. Gary also participated as a judge for the Regional Science Fair where two projects qualified for the National Science Fair in Windsor, Ontario.

The Centre is actively involved with the Mackenzie Delta Coordinating Committee. This Committee, which consists of government, university and industry researchers, provides a forum for exchanging information on local research work; identifies and reviews research needs in the Delta, and distributes information on research to members and interested groups. The Committee is chaired by the manager of the Inuvik Research Centre.

In-house research studies have included culvert thawing, growing vegetables north of the Arctic Circle, Mackenzie Delta ice studies and geological mapping along the Dempster Highway. The latter will be published as a guide for tourists.

Inuvik Research Centre staff also include Les Kutny, Technician, and a clerk/librarian. Until recently the latter position was held by Christine Firth. As well as providing logistical support to visiting and resident scientists, Les manages several in-house research projects, monitors projects for visiting researchers and maintains equipment at the Centre. Recently Les completed a training course on outboard motor repairs, held in Vancouver.

The Centre's Northern Science Library houses more than 5,000 books, periodicals and journals. These titles are to be entered into a computer database. A microcomputer system, which is available for researcher use, has been expanded to include a 386SX computer, a colour monitor and a laser-jet printer.

A recently published information circular listing the equipment, facilities and services available to researchers can be obtained by writing the Centre Manager.

For further information regarding any of the Research Centres please contact the Centre Manager directly or write to the Director, Scientific Services in Yellowknife.

Igloolik Research Centre
Science Institute of the N.W.T.
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X0A 0L0
(T)(819) 934-8836
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Inuvik, N.W.T.
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(T)(403) 979-3838
(Fax)(403) 979-3570

Photo: Laura Lynn McCulloch, Iqaluit Research Centre

In the home ...

Photo: Gary White, Inuvik Research Centre

... the field ...

Photo: Laura Lynn McCulloch, Iqaluit Research Centre

... the Research Centres ...

... we learn from each other.

Our Northern Perspective

Science Institute of the Northwest Territories
Financial Statements March 31, 1990

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and Unexpended Funds 20
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MacKay
&Partners
Chartered
Accountants

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To the Board of Governors
Science Institute of the Northwest Territories

We have examined the balance sheet of the Science Institute of the Northwest Territories as at March 31, 1990 and the statement of revenue, expenditures and unexpended funds for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Institute as at March 31, 1990 and the results of its operations for the year then ended in accordance with the accounting principles as disclosed in Note 1, applied on a basis consistent with that of the preceding year.

MacKay + Partners

MacKay & Partners
Chartered Acountants

Yellowknife, Northwest Territories
May 16, 1990

Statement of Revenue, Expenditures and Unexpended Funds

For the Year Ended March 31, 1990

	1990		
REVENUE	Revised Budget	Actual	1989 Actual
Government of the Northwest Territories			
Department of the Executive	$1,507,150	$1,591,524	$809,100
Department of Renewable Resources	7,000	12,000	9,400
Department of Education	3,000	6,000	7,000
Department of Culture and Communications	2,400	2,400	-0-
Department of Public Works	-0-	-0-	4,000
Government of Canada			
Employment and Immigration	-0-	1,247	-0-
National Research Council of Canada	98,600	94,983	42,454
Supply and Services Canada	-0-	-0-	42,426
Industry, Science and Technology	-0-	23,575	16,300
Energy, Mines and Resources	-0-	2,400	-0-
Environment Canada	-0-	1,800	-0-
Environmental Assessment Review Office	-0-	-0-	1,900
Science Council of Canada	-0-	-0-	1,506
Interest	46,000	98,648	28,971
Donations	-0-	-0-	6,500
Contributions from:			
Pacific Metals	6,800	5,000	-0-
Northwest Territories Power Corporation	-0-	1,000	-0-
Publications	-0-	195	216
Rental and services	8,300	2,954	9,555
Sale of assets	-0-	15,535	-0-
	1,679,250	1,859,261	979,328

	1990		
	Revised Budget	Actual	1989 Actual
EXPENDITURES			
Salaries and benefits	1,121,310	968,845	432,724
Administration	95,975	100,444	74,990
Information education	105,700	95,684	85,373
Research Centre operations - Igloolik	55,800	74,504	25,978
Research Centre operations - Iqaluit	60,000	64,900	27,996
Research Centre operations - Inuvik	61,550	63,466	17,953
Research Centre operations - Headquarters	43,550	38,370	32,988
Industrial Research Assistance Program	36,090	36,692	26,471
Research assistance	25,000	23,650	37,095
Technology development	165,000	19,796	-0-
Executive Director	16,700	17,327	13,646
Board of Governors	55,000	14,673	20,080
Chairman	19,000	5,295	9,833
Research	-0-	-0-	17,334
	1,860,675	1,523,646	822,461
INCREASE IN UNEXPENDED FUNDS FOR THE YEAR	(181,425)	335,615	156,867
BALANCE, OPENING	-0-	261,425	104,558
BALANCE, CLOSING	$ -0-	$ 597,040	$261,425

Balance Sheet as at March 31, 1990

	1990	1989
ASSETS		
CURRENT		
Cash and term deposits	$ 729,442	$ 430,644
Accounts receivable	163,839	113,804
Prepaid expenses	851	225
	894,132	544,673
FIXED	664,059	581,377
	$1,558,191	$1,126,050
LIABILITIES		
CURRENT		
Accounts payable and accrued liabilities	$ 137,045	$ 170,674
Deferred revenue (Note 2)	160,047	112,574
	297,092	283,248
INSTITUTE'S EQUITY		
INVESTMENT IN FIXED ASSETS	664,059	581,377
UNEXPENDED FUNDS (Note 3)	597,040	261,425
	1,261,099	842,802
	$1,558,191	$1,126,050

APPROVED BY THE BOARD OF GOVERNORS:

John D. Parkin Chairman

Kaye MacInnes Governor

Notes to the Financial Statements for the year ended March 31, 1990

1. SIGNIFICANT ACCOUNTING POLICIES

A. Unrecorded Costs Paid by the Government of the Northwest Territories

The Government of the Northwest Territories provides approximately 1,850 square feet of office space, rent free. In addition the Government provides telephone and mail services, printing, translation and library services, as well as other services that are under an Administration Agreement without charge. No provision has been made for these costs.

The G.N.W.T. also provides 3 research centres, 5 scientific reserves and 2 field stations along with all maintenance and utilities related thereto, for the exclusive use of the Institute on a rent free basis. No provision for these costs are included in these financial statements.

B. Fixed Assets

Fixed assets are expensed in the year of acquisition. The accounts "fixed assets" and "investment in fixed assets" reflect the historical cost of all assets owned by the Institute.

Office equipment and furnishings belonging to the Government of the Northwest Territories that were being used by the Institute were transferred to the Institute by the Administration Agreement on February 18, 1987 and recorded at values established by the Government of the Northwest Territories.

Office equipment and furnishings associated with federal research facilities in the Northwest Territories were transferred to the Institute under an agreement dated November 18, 1988 and recorded at values established by the Government of the Northwest Territories.

Other fixed assets purchased by the Institute are expensed in the year of acquisition.

2. DEFERRED REVENUE

Deferred revenue represents monies committed for programs for which the expenditures have not yet been incurred.

	1990	1989
Medical Research -Minister of Consumer Affairs	$151,312	$100,839
Slowpoke Reactor Program - Energy, Mines and Resources Canada	7,000	7,000
Rayrock Program - Indian and Northern Affairs Canada	1,735	1,735
Science Fair Travel - Department of Education	-0-	3,000
	$160,047	$112,574

3. UNEXPENDED FUNDS

Included in unexpended funds is $246,460 which the Board has identified to be spent on the Technology Development Program in the 1991 fiscal year.

4. JURISDICTION OF INCORPORATION

The Science Institute of the Northwest Territories was established by an Act of the Government of the Northwest Territories in 1984.

1989 1990 ᒪᑦ ᐊᖏᕐᕋᒍᒪᕐᓂᐅᑎᖅᑐᑦ ᐅᓂᒃᓴᓂᐅᖏᑦᑐᒍᓱᒪᓕᕆᔨᖅ
ᓄᓇᕗᑦᐊᖏᒥᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᖃᖏᑦ ᑲᑎᒪᔨᖅᑐᑦᓯᓚᐅᑉᓯᓂᑦ

ᐅᑭᐅᖃᑕᖃᑐᖏᑦᑐᒍᓱᒪᐃᑦ ᖃᐅᔨᓴᖅᖃᐃᓐᓇᕐᓂᑦ ᑲᑎᒪᔨᖅᑐᑦᓯᓚᐅᑉᓯᓂᑦ

ᓄᓇᕐᔪᐊᕐᒥᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᓕᕆᔨᒃᑯᑦ ᐱᕆᐊᓚᐅᖅᓯᒪᔪᑦ ᓄᓇᕐᔪᐊᕐᒥᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᐅᖃᐅᔭᐃᔨᒃᑯᑦ ᑲᑎᒪᔨᖏᓐᓂᑦ ᐱᑕᖃᕐᓂᓚᐅᕐᒧᑎᑦ ᐃᒃᑯᐊᐸᕆᐊᑦᑕᐅᓚᐅᖅᓯᒪᔪᑦ ᒪᓕᒃᑕᐅᓯᒪᑎᒃᑯᑦ ᓄᓇᕐᔪᐊᕐᒥᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᒃ ᖃᐅᔨᓴᖅᑎᓕᕆᔨᒃᑯᑦ ᐱᖁᔭᖓᑦ 1984 ᖑᑎᒃᑯᑦ

ᓱᓇᑐᐃᓐᓇᕐᓂᒃ ᖃᐅᔨᓴᖅᑎᓕᕆᔨᒃᑯᑦ ᐅᒥᖓᑦ ᑐᕌᐱᓯᒪᕗᑦ ᖃᐅᔨᓴᖅᑕᐅᒃᑯᑎᑦ ᐱᓯᒪᔪᓕᖅᑐᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᓴᓇᔭᓕᕆᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓄᑖᑦ ᓱᓇᑐᐃᓐᓇᕐᓄᑦ ᐊᑐᖅᑕᐅᓯᒪᔭᓐᓇᖅᓯᔪᑦ ᑕᒪᓂᑦ ᓄᓇᕐᔪᐊᕐᒥᑦ ᐱᕙᓪᓕᐊᓂᕐᓂᑦ ᐊᕿᒃᓯᒪᓪᓗᑎᑦ ᑕᒪᐅᙵ ᐅᐸᑎᒃᓄᑦ ᐊᑐᖅᑕᐅᓯᒪᔭᓐᓇᖅᓯᔪᑦ ᐱᔪᓕᐊᑎᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ ᐃᓄᓯᕆᓂᕐᒧᑦ ᐊᒻᒪᓗ ᒪᕐᒪᓕᐅᑎᑦᓴᓕᕆᓂᕐᒧᑦ ᑐᕌᐱᓯᓇᔪᔪᑦ ᓄᓇᕐᔪᐊᕐᒥ ᐅᓄᑦ ᑎᑭᐅᑎᔭᐅᓯᒪᓂᐊᖅᑯᒥᑦ

ᐱᖁᔭᕐᒧᑦ ᐊᑐᖅᑕᐅᓯᒪᖁᔨᔪᑦ ᐊᖏᖅᑕᐅᓯᒪᒐᑦᑕᖅᑐᑦ ᑲᑎᒪᔨᖏᓐᓄᑦ ᑕᐃᒃᑯᐊ ᑲᑎᒪᔾᔪᑦ ᐊᒥᔮᓂᖏᑦ 7 ᒥᑦ 13 ᒧᑦ ᑎᑭᐅᑎᓯᒪᔭᐅᓇᖅᑐᑦ ᑎᓕᔭᐅᓯᒪᓗᑎᓗ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᓕᕆᔨᒃᑯᑦ ᒥᓂᔅᑕᒪᓄᑦ. ᑲᑎᒪᔨᖏᓐᓂᑦ ᓄᓇᕐᔪᐊᕐᒥᐅᑕᐃᑦ ᐊᒥᔮᓂᖅᓴᐅᔪᓐᓇᖅᑐᑦ

ᑲᑎᒪᔨᖏᓐᓄᑦ ᐊᖏᖅᑕᐅᔪᑦ ᐊᑐᖅᑕᐅᓯᒪᒥᐊᖅᑐᑦ ᑲᒪᔨᐅᓯᒪᓂᐊᖅᑯᒥᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᓕᕆᔨᒃᑯᑦ ᐃᖃᓇᐃᔭᖅᑎᖃᖅᑐᑦ 17 ᓂᑦ ᐊᑕᐅᓯᖅᒥᒃ ᐊᐅᓚᑦᓯᔨᐅᔪᒥᒃ ᐊᓕᐊᑎᒃᑲᕐᒧᑎᑦ ᐃᓚᖏᓐᓂᑦ ᐱᓕᕆᐊᕆᔭᐅᓯᒪᓕᖅᑐᓂᑦ ᑕᒪᐅᙵ ᐱᖃᓯᐅᑎᔭᐅᔪᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᓱᓇᑯᑖᖃᖅᑎᑦᑎᓂᖅ, ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᐅᖃᐅᔭᐃᓂᖅ, ᑐᓴᖅᓴᖅᑎᑦᑎᓂᖅ ᐊᒻᒪᓗ ᐃᓕᓐᓂᐊᖅᑎᑦᑎᓂᖅ, ᐊᒻᒪᓗ ᓄᑖᓂᑦ ᐊᑐᖅᑕᐅᓯᒪᔭᓐᓇᖅᑐᓂᑦ ᐱᔪᓕᐊᑎᑎᓂᖅ

[illegible]

ᐃᓕᓴᖅᓯᓂᖅ:

ᑖᓐᓇ ᔭᐃᒥ ᐊ ᕼᐊᕆᓴᓐ CC, ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᓕᕆᔨᒃᑯᓐᓂᑦ ᐃᓯᒣᑕᕆᔭᐅᓚᐅᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᐅᖃᐅᔭᐃᔨᒃᑯᑦ ᑲᑎᒪᔨᖏᓐᓂᒃ ᑲᑕᐅᓚᐅᖅᓯᒪᓕᖅᑐᓂᑦ. ᑐᖕᒐᓚᐅᕐᒪᑦ ᔫᓚᐃ ᖑᑎᒃᑯᑦ 1990 ᒥ. ᑖᓐᓇ ᕼᐊᕆᓴᓐ ᐱᓕᕆᐊᕆᓯᒪᓚᐅᖅᑕᖏᑦ ᐅᔭᕋᓐᓂᕐᒧᑦ ᓯᓚᕐᔪᐊᓕᕆᓂᕐᒥᑦ ᖃᐅᔨᓴᖅᑎᐅᔪᓄᑦ ᐃᓕᓐᓂᐊᖅᑎᑦᑎᓚᐅᖅᑐᑦ ᐊᒻᒪᓗ ᓯᓚᕐᔪᐊᓕᕆᓂᕐᒧᑦ ᑲᓇᑕᒥᑦ ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᐅᔪᓂᑦ ᑭᒡᒐᖅᑐᐃᓯᒪᓂᖓ ᐃᓕᓐᓂᐊᖅᑎᑦᑎᓚᐅᖅᑎᓪᓗᓂ ᐅᔭᕋᓐᓂᕐᒧᑦ ᖃᐅᔨᓴᖅᑎᐅᓚᐅᖅᑐᖅ ᐊᒻᒪᓗ ᐱᓕᕆᐊᕆᓯᒪᓚᐅᖅᑕᖏᑦ, ᓄᓇᕐᔪᐊᖅ ᓄᓇᖏᑦ ᑲᑐᔾᔨᖃᑎᒌᖕᖑᐊᓂᑦ ᐃᓚᒃᑲᑎᒋᓪᓗᓂ. ᐃᓕᓐᓂᐊᖅᑐᓂᕐᒧᑦ, ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᐊᒻᒪᓗ ᐃᓕᓐᓂᐊᖅᑐᓕᕆᓂᕐᒧᑦ. ᐊᑐᕐᓯᒪᓚᐅᖅᑕᖏᑦ ᑲᓇᑕᒥ ᐃᓕᓐᓂᐊᖅᑎᑦᑎᓂᕐᒧᑦ ᐱᑕᖅᑎᑕᐅᓚᐅᕐᒪᑦ ᓇᓗᓇᐃᖅᑕᐅᒋᐊᖃᓲᖑᓂᐊᖅᑎᑦ Order of Canada-ᖑᓂᖅᑕᖅᑐᒥᒃ.

ᑖᓐᓇ ᕼᐃᕆᓴᓐ ᑐᖕᒐᓕᕐᒥᑎᓪᓗ ᐅᑭᐅᖅᑕᖅᑐᕐᒥᑦ ᐱᖃᓐᓇᔪᐊᓗᐊᖅᑐᖅ ᐊᒻᒪᓗ ᐊᓯᐊᒎᖅ ᐃᑲᔪᖅᑐᐃᓚᐅᖅᑐᖅ ᐊᓯᐅᔪᖅ. ᐃᓄᖏᓐᓂᑦ ᓇᓕᒧᓯᓐᓇᓗᐊᖅᓯᒪᔪᖅ ᐊᒻᒪᓗ ᐃᓯᒪᒋᔭᖏᑦ ᑐᕌᒪᒃᑕᐅᓚᐅᖅᑕᖏᑦ ᐱᕙᓪᓕᐊᖏᓐᓇᖅᑎᑦᑎᓂᐊᖅᑕᐅᓚᐅᖅᓯᒪᔪᓐᓂᒃ. ᐊᓂᐊᓇᐃᑐᓯᓐᓇᑦᑕ ᑖᓐᓇ ᔫᒥ. ᐱᔪᓐᓇᕐᓂᖏᑦ ᓯᓚᕐᔪᐊᓕᕆᓂᕐᒧᑦ ᐃᓕᓐᓂᐊᖅᑎᓯᒪᑎᒃᑯᑦ, ᓱᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᓐᓂᑦ ᐃᑲᔪᖅᑕᐅᒐᓚᐅᕐᒪᑦ.

ᔫ ᕼ. ᐸᑯ
ᐃᖃᓗᐃᑦ

ᐅᑭᐅᖃᕐᓂᖅ ᓄᓇᕗᑦ ᖃᐅᔨᓴᖅᑎᑦᑎᓂᖅ

ᐃᓚᖏᑦ

ᐅᑭᐅᖃᕐᓂᖅ ᓄᓇᕗᑦ ᐊᑐᕐᓇᖅ 1

ᐃᓕᓴᕐᓂᐊᕐᓂᖅ ᐊᑐᕐᓇᖅ ᐅᖃᓕᒫᓂᖅ 2

ᓄᑖᒻᒥᓂᖅ 4

ᑐᓴᐅᒻᒪᖅᑐᑦ ᐊᑐᕐᓇᖅ ᐃᓄᐃᑦᑐᑦ 6

ᓄᓇᕗᑦ ᐊᑐᕐᓇᖅ ᐅᖃᓕᒫᓂᖅ ᐅᑭᐅᖃᕐᓂᖅ 8

ᐃᓄᐃᑦᑐᑦ ᐊᑐᕐᓇᖅ 10

ᓄᓇᕗᑦ ᐊᑐᕐᓇᖅ ᐅᖃᓕᒫᓂᖅ ᐱᒋᐊᕐᓂᒃ 12

ᐅᑭᐅᖃᕐᓂᖅ ᐃᓕᓴᕐᓂᐊᕐᓂᖅ 16

ᐃᓄᐃᑦᑐᑦ ᐊᑐᓕᖅ ᐊᐅᓚᓕᐅᑦ ᐊᐅᓚᓕᐅᑦ ᐃᓄᐃᑦᑐᑦ ᐊᑐᓕᖅ ᐊᐅᓚᓕᐅᑦ

ᐃᓄᐃᑦᑐᑦ ᐊᑐᓕᖅ ᐊᐅᓚᓕᐅᑦ

ᐊᓂᔑᓇᐯᒧᐎᓐ ᓂᐲᑎᑕᐅᓯᒪᔨᓐ ᐊᓂᔑᓇᐯᒧᐎᓐ ᐅᓂᒃᑳ

ملخص

ﻣﺎﺭﺳﻴﻞ ﺑﺮﻭﺳﺘﻴﻦ ﻭﺍﻟﺰﻭﺟﺔ ﺍﻟﺜﺎﻧﻴﺔ ﻟﻠﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻧﻲ ﻓﻲ ﺍﻟﻤﻨﺎﺳﺒﺔ ﺍﻟﺴﻨﻮﻳﺔ ﻟﺘﺘﻮﻳﺠﻬﻤﺎ ﻣﻠﻜﺔ ﻭﻣﻠﻜﺎ ﻟﻤﻤﻠﻜﺔ ﺑﻴﺖ ﺍﻟﻤﻘﺪﺱ

ﻭﻟﺪ ﻓﻲ ﺍﻟﻘﺪﺱ ﻓﻲ ﺍﻟﺜﺎﻟﺚ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٦١ ﻭﻫﻮ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻧﻲ ﺍﻟﺬﻱ ﺗﻮﻟﻰ ﻋﺮﺵ ﻣﻤﻠﻜﺔ ﺑﻴﺖ ﺍﻟﻤﻘﺪﺱ ﻓﻲ ﺍﻟﺜﺎﻟﺚ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٧٦ ﺑﻌﺪ ﻭﻓﺎﺓ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻷﻭﻝ ﻭﻭﺍﻟﺪﻩ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻟﺚ ﺍﻟﺬﻱ ﺗﻮﻓﻲ ﻓﻲ ﺍﻟﺴﺎﺩﺱ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٧٦ ﻭﻫﻮ ﻓﻲ ﺍﻟﺴﺎﺩﺳﺔ ﻋﺸﺮﺓ ﻣﻦ ﻋﻤﺮﻩ.

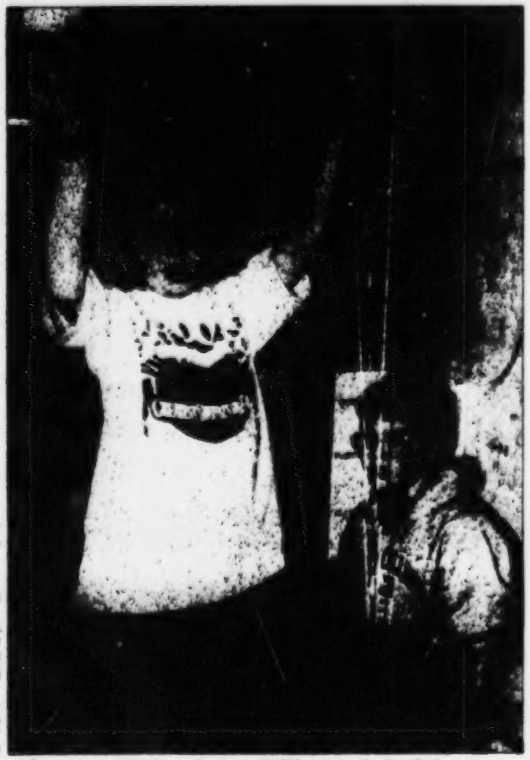
ﻭﻗﺪ ﺍﺳﺘﻤﺮ ﺣﻜﻢ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻟﺚ ﻟﻤﺪﺓ ﺛﻼﺛﻴﻦ ﺳﻨﺔ ﻭﺷﻬﺮﻳﻦ ﻭﺛﻼﺛﺔ ﻭﻋﺸﺮﻳﻦ ﻳﻮﻣﺎ. ﻭﻗﺪ ﺗﻮﻟﻰ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻧﻲ ﺍﻟﺤﻜﻢ ﻓﻲ ﺍﻟﺴﺎﺩﺱ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٧٦ ﻭﻫﻮ ﻓﻲ ﺍﻟﺴﺎﺩﺳﺔ ﻋﺸﺮﺓ ﻣﻦ ﻋﻤﺮﻩ. ﻭﻗﺪ ﺍﺳﺘﻤﺮ ﺣﻜﻤﻪ ﻟﻤﺪﺓ ﺛﻼﺛﻴﻦ ﺳﻨﺔ ﻭﺷﻬﺮﻳﻦ ﻭﺛﻼﺛﺔ ﻭﻋﺸﺮﻳﻦ ﻳﻮﻣﺎ.

ﻭﻗﺪ ﺗﻮﻟﻰ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻟﺚ ﺍﻟﺤﻜﻢ ﻓﻲ ﺍﻟﺴﺎﺩﺱ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٧٦ ﻭﻫﻮ ﻓﻲ ﺍﻟﺴﺎﺩﺳﺔ ﻋﺸﺮﺓ ﻣﻦ ﻋﻤﺮﻩ. ﻭﻗﺪ ﺍﺳﺘﻤﺮ ﺣﻜﻤﻪ ﻟﻤﺪﺓ ﺛﻼﺛﻴﻦ ﺳﻨﺔ ﻭﺷﻬﺮﻳﻦ ﻭﺛﻼﺛﺔ ﻭﻋﺸﺮﻳﻦ ﻳﻮﻣﺎ.

ﻭﻟﺪ ﻓﻲ ﺍﻟﻘﺪﺱ ﻓﻲ ﺍﻟﺜﺎﻟﺚ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٦١ ﻭﻫﻮ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻧﻲ ﺍﻟﺬﻱ ﺗﻮﻟﻰ ﻋﺮﺵ ﻣﻤﻠﻜﺔ ﺑﻴﺖ ﺍﻟﻤﻘﺪﺱ ﻓﻲ ﺍﻟﺜﺎﻟﺚ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٧٦ ﺑﻌﺪ ﻭﻓﺎﺓ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻷﻭﻝ ﻭﻭﺍﻟﺪﻩ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻟﺚ ﺍﻟﺬﻱ ﺗﻮﻓﻲ ﻓﻲ ﺍﻟﺴﺎﺩﺱ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٧٦ ﻭﻫﻮ ﻓﻲ ﺍﻟﺴﺎﺩﺳﺔ ﻋﺸﺮﺓ ﻣﻦ ﻋﻤﺮﻩ.

ﻭﻗﺪ ﺍﺳﺘﻤﺮ ﺣﻜﻢ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻟﺚ ﻟﻤﺪﺓ ﺛﻼﺛﻴﻦ ﺳﻨﺔ ﻭﺷﻬﺮﻳﻦ ﻭﺛﻼﺛﺔ ﻭﻋﺸﺮﻳﻦ ﻳﻮﻣﺎ. ﻭﻗﺪ ﺗﻮﻟﻰ ﺍﻟﻤﻠﻚ ﻓﻮﻟﻜﻮ ﺍﻟﺜﺎﻧﻲ ﺍﻟﺤﻜﻢ ﻓﻲ ﺍﻟﺴﺎﺩﺱ ﻣﻦ ﺷﻬﺮ ﺁﺏ ﻋﺎﻡ ١٩٧٦ ﻭﻫﻮ ﻓﻲ ﺍﻟﺴﺎﺩﺳﺔ ﻋﺸﺮﺓ ﻣﻦ ﻋﻤﺮﻩ. ﻭﻗﺪ ﺍﺳﺘﻤﺮ ﺣﻜﻤﻪ ﻟﻤﺪﺓ ﺛﻼﺛﻴﻦ ﺳﻨﺔ ﻭﺷﻬﺮﻳﻦ ﻭﺛﻼﺛﺔ ﻭﻋﺸﺮﻳﻦ ﻳﻮﻣﺎ.

ᑐᓴᒃᓴᖅᓯᖏᑐᓂᒃᑐᖅ ᐊᒻᒪᓗ ᐃᓄᐃᑦ ᐊᑐᖅᑐᑦ ᐅᖃᓕᒫᖅᑐᑦ



ᐱᖓᓱ ᐱᓕᕆᓂᖅᑎᑦ — ᐊᓂᔪᓇᓂᒃᑎᑦᑎᓂᒃ ᖃᐅᔨᓴᖅᑎᑦ

ᓄᓇᕗᑦᓴᓐᓂ ᖃᐅᔨᓴᖅᑎᑦᑎᓂᓕᕆᔨᒃᑐᑦ ᑐᓴᕐᕕᒃᓴᒥᒃᑎᑦᑎᓂᒃᑐᑦᓯᒪᓂ ᐃᓚᐃᑦ ᐊᑐᓂᒃ ᓄᓇᕗᑦᓴᓐᓂ ᐃᓚᐃᑦ ᖃᐅᔨᓴᖅᑎᑦᑎᓂᓕᕆᔨᒃᑐᑦ ᑐᓴᕐᕕᒃᓴᒥᒃᑎᑦᑎᓂᒃᑐᑦᓯᒪᓂ ᑕᐃᒪᓐᓇ ᑭᓱᓂ ᐃᑲᔪᖅᑎᑦᑎᓂᒃᑐᑦᓯᒪᓂᖅ ᑕᒪᓐᓇ ᐃᑲᔪᖅᑎᑦᑎᓂᒃᑐᑦᓯᒪᓂ ᐱᓕᕆᓂᖅᑎᑦᑎᓂᒃᑐᑦᓯᒪᓂᖅ ᖃᐅᔨᓴᖅᑎᑦᑎᓂᒃᑐᑦᓯᒪᓂᖅ ᐃᓄᐃᑦ ᓄᓇᕗᑦᓴᓐᓂᑐᑦ ᐊᑐᓂᒃᑐᑦᓯᒪᓂᖅ ᐃᓄᐃᑦ ᐊᑐᖅᑐᑦ ᐃᓄᐃᑦ ᐃᓚᐃᑦ ᓄᓇᕗᑦᓴᓐᓂᑐᑦ ᐃᓄᐃᑦ ᐊᑐᖅᑐᑦ ᐃᓄ

ᓄᓇᕗᑦ ᓴᓇᔨᓴᖅᑎᑐᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᑦ

ᐊᓂᒍᖅᑕᐅᓯᒪᔪᑦ ᐃᓄᐃᑦ ᐱᓕᕆᔨᒃᑯᑦ ᐊᑐ

ᓄᓇᕗᑦ ᐃᓚᖃᖅᑐᑦ ᐊᑐᓕᕆᓂᖅ ᐊᓂᒍᖅᑕᐅᓂᖅ

ᓄᓇᕗᑦ ᐱᓕᕆᔨᒃᑯᑦ ᐊᑐᕐᓂᖅ ᓄᓇᓕᖕᓂᖅ

ᐊᑐᕐᓂᖅ ᓄᓇᓕᖕᓂᖅ ᐱᓕᕆᔨᒃᑯᑦ

ᐱᐅᓯᕆᓂᖅᑎᑕᐅᓯᒪᓂᕐᓂᐊᕐᓂᒃᑯᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᖃᑦᑕᖅᑐᑦ ᓴᓇᔨᓂᓐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᓴᓇᔨᓐᓂᓂᐅᑉ ᐱᓕᕆᐊᖑᑎᑕᐅᓯᒪᓂᐊᕐᓂᖓᓄᑦ ᐊᑐᖅᑕᐅᔪᓐᓗ ᑕᐃᒫᒃ ᐊᑐᑎᒃᑲᓐᓂᕐᔪᑦ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᑦ ᖃᓄᐃᓐᓇᑎᑐᑦ (BAT) ᑲᑐᔾᔨᖅᑕᐅᔪᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᓯᑎᑕᐅᖃᑦᑕᓚᐅᑦ ᒥᑭᓂᖅᓴᓂᑦ ᐊᒻᒪᓗ ᐊᖏᔪᐊᖏᑦᑐᓂᑦ ᓇᒻᒥᓂᖅᑐᓄᑦ ᐅᐸᐅᖅᑕᖅᑐᒃᑯᑦ IRAP-ᑯᓐᖓᖅᑕᐅᔪᒃᑯᑦ ᓇᒻᒥᓂᖅᑐᑦ ᐃᑲᔪᖅᑕᐅᓯᒪᔪᓐᓇᖅᓯᑎᑕᐅᓪᓗᑎᑦ ᐊᔾᔨᒋᓄᑦ ᑲᓇᑕᒥ ᓯᓇᕐᑖᖅᑎᑦᑎᔨᖕᓂᒃ ᔫᓗ ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᓴᓇᔨᓂᓐᓂᒃᑯᑦ ᐃᓕᓯᒪᔪᓄᑦ ᓚᐃᓚᒃᑯᑦ ᖃᐅᔨᓴᖅᐱᒋᓐᓂᑦ. ᐊᑕᐅᓯᕐᒧᑦ ᖃᐅᔨᓴᕐᐱᑦ. ᐃᓕᓐᓂᐊᕐᐱᓯᐊᑦ ᐊᒻᒪᓗ ᓴᓇᔨᓂᓐᓂᒃᑯᑦ ᐅᖃᐅᓯᐃᑦ ᑲᒻᐸᓂᖏᓐᓂᑦ ᑕᒪᓐᓇ ᐱᓕᕆᐊᖑᔪᑎᓂᖅᑯᑦ IRAP-ᑯᓐᖓᖅᑕᐅᔪᖅ ᖃᐅᔨᒪᖅᑎᑦᑎᑎᓯᒪᔪᓐᓇᕆᐊᖏᑦ ᓇᒻᒥᓂᖅᑐᓄᑦ ᓇᓪᓕᒋᔭᐅᓯᒪᔪᓄᑦ

ᐱᓕᕆᐊᖑᔪᑎᓂᖅᑯᑦ ᑭᒍᐃᓐᓇᕐᓄᑦ ᑐᐅᓚᔪᑎᓕᕆᓚᐅᓚᑦ ᐱᓕᕆᐊᖃᕐᓂᒃ ᑎᑎᕋᖅᓯᒪᔭᒃᑲᓂᒃᑯᑦ. ᑐᓚᒃᓴᖅᑐᓂᑦ ᐅᓪᓚᖅᑎᑎᖃᒃᑲᓂᒃᑯᑦ ᐊᒻᒪᓗ ᑭᑯᐃᓐᓇᕐᓄᑦ ᑲᑎᒪᓂᒃᑲᓂᒃᑯᑦ ᑐᓚᒃᑲᖅᑎᑎᓐᓂᒃᑯᑦ ᓄᓇᓕᓐᓂ ᐊᒋᔨᐅᓚᐅᑦ ᓇᒻᒥᓂᖅᑐᑦ ᑐᓴᒃᑲᓂᕈᓚᐅᖅᑐᑦ ᑕᒪᑐᒪ ᒥᒃᓵᓂ ᑕᐃᒪᓐᓂᒃ ᓄᓇᕗᒻᒥᐅᑕᐃᓐᓂ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᓂ ᐃᓄᐃᑦ ᑐᓚᒃᑲᖅᑎᑦᑎᓚᐅᖅᑐᓂ ᐃᓚᖏᑦ ᑐᓚᒃᑲᓂᕈᓚᐅᖅᑐᑦ ᖃᓄᐃᑐᓚᐅᓚᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᓯᒪᖅᑐᑦ ᐃᑦᑐᐱᓚᐅᖅᑯᐃᔨᓂ ᐃᓄᐃᑦ ᐱᓕᕆᐊᖏᓐᓂᒃᑯᑦ. ᐃᓄᐃᑦ ᐱᓕᕆᐊᖏᑦ ᓴᐱᕆᓂ ᐊᖏᕐᒥᒍᐊᖑᓐᓇᖅᑐᓂ ᑐᓚᐱᖅᑐᓂ ᐊᒻᒪᓗ ᖃᐅᓕᓂᖏᑦ ᐊᑐᕐᓗᑎᑦ ᐅᒪᕐᔪᑎᑦᓴᓂ ᐊᑐᖏᓐᓂᖅᓴᓂᐊᖅᑐᓂ ᐃᓅᓯᕆᓂᖅᑕᐅᓯᒪᓂᐊᖅᑐᓄᑦ ᐃᖏᕐᕈᑎᑦᓴᓕᕆᓂᓄᑦ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᓯᔪᑦ ᐊᐱᕐᓱᑎᑦᓯᒪᓪᓗᑎᒋᔪᑦ ᐱᔪᑎᑦᓯᒪᓂᐊᖅᑐᑦ ᓯᑯᒧᓂ ᐃᑲᖅᑕᐅᑦ ᓴᓇᔨᒪᓂᖏᓐᓄᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᓯᔪᑦ. ᐊᓪᓗᑎᑦ ᓴᓇᔨᒪᓂᖏᓐᓄᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᑦ ᐱᐅᓂᖅᓴᐅᕆᐊᖃᕐᓂᐊᕐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᐊᑦᑐᐃᓂᖅᓱᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᕐᓂᐊᕐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᓯᐅᖃᒃᑯᑦ ᐳᔪᖅᑐᕐᓂᖅᓴᐅᓕᕐᓂᐊᕐᓂᒃᑯᑦ ᐊᔾᔨᖏᓐᓂᒃ ᑐᓚᒃᓴᐃᑦ ᓯᓇᔨᓂᓐᓂᒃᑯᑦ ᐊᒻᒪᓗ ᓂᐅᐱᐊᓴᕆᐅᕐᓂᒃᑯᑦ ᐱᐊᓕᔪᓗᐃᑦᑐᕕᐊᑦ ᔫᓗ, ᓄᐱᖅᓵᕆᐅᕐᓂᒃᑯᑦ. ᒥᑎᐅᑦ ᐃᓇᑦᑕᖏᑦ ᐊᑐᖅᑕᐅᓯᒪᓂᖏᓐᓄᑦ. ᐃᒪᓯᒥᐅᑕᐅᓂᑦ ᐊᒻᒪᓗ ᐅᒪᔪᓂᑦ ᓄᐊᕐᔪᓂᖅ ᐊᒻᒪᓗ ᖃᓇᐅᔭᖅᑐᓂᖅ ᖃᓇᐅᔭᒃ ᐅᖃᓕᒪᐅᕐᓂᖅᑐᕐᓂ ᐱᐊᓐᓂᖅᑐᐃᓂᑦ ᓇᐃᓴᐃᓂᖅ. ᓯᕿᓂᐅ ᖃᐅᓚᓂᖅᓄᑦ ᐆᒪᐃᓐᓂᖅᓴᕐᓂᖅ ᐊᒻᒪᓗ ᐊᕕᖏᓐᓗ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᑦ ᐆᒪᐃᓐᓂᖅᓴᓄᑦ. ᐊᒻᒪᓗ ᐊᕙᓗᐊᕙᓂᑦ, ᐊᓯᖏᓐᓂ ᐊᒻᒪᓗ ᐊᕕᖏᓐᓗ ᐊᑐᖅᑕᐅᓯᒪᖃᑦᑕᖅᑐᑦ ᐊᑐᖅᑕᐅᕐᓂᖅᓯᒪᔪᓐᓇᕐᓂᖏᑦ ᐊᒥᓱᑦ ᐃᓄᓐᓄᑦ ᐊᐱᕐᓱᑎᑦᓯᒪᓪᓗᑎᑦ

ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᓂᖃᕆᓂᖏᓐᓄᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᑦ ᐅᖃᐅᓯᓐᓂᖅᓯᒪᓂᖏᓐᓄᑦ ᐱᔪᑎᑦᓯᒪᓪᓗᑎᑦ ᓂᕿᒃᓴᐃᑦ ᖃᓄᐃᑦᑐᓂᑦ

ᓂᕆᐊᖅᑕᐅᓯᒪᔪᓂᖅ ᑲᓂᒐᐃᖅᑐᓂᑦ ᓂᕿᒃᓴᐃᑦ ᓂᕆᐊᖓᐅᔪᑦ ᐱᐅᔪᒥᖅᓴᐃᕙᒃᑐᒥᖅᓴᐅᓚᐅᑦ. ᓄᑎᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᑦ ᓂᕆᐊᒃᑎᓂᑦ ᑐᖅᑕᐃᐱᑦ ᐊᒻᒪᓗ ᕿᓯᑦ ᒥᕐᔪᖏᑦ ᐱᔪᖅᑕᐅᓯᒪᓂᐊᖏᑦ ᓄᑕᕐᓗᖏᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᓯᔪᓗ. ᐊᒻᒪᓗ ᐃᑲᔪᐊᕐᓂᐊᕐᓂᒃᑯᑦ ᓄᑕᕐᓗᖏᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᓯᔪᓗ ᐃᓄᐃᑦ ᐊᑐᖏᓐᓂᑦ ᓴᓇᔪᓯᒪᖃᑦᑕᖅᑐᓂ ᐊᒻᒪᓗ ᐅᐦᐊᖅᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ ᓄᓇᕆᔭᐅᔪᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᕐᓂᐊᕐᓂᖅᑐᑦ ᖃᐅᔨᓴᖅᑕᐅᓗᑎᑦ ᐊᒃᑐᖓᔪᑦ ᐊᑐᖅᑕᐅᓗᑎᑦ ᓄᓇᕆᔭᐅᔪᑦ ᓇᓂᓯᓂᖅᑐᑦ ᓄᓕᐊᖃᕐᓂᖅᓴᐅᓂᖅᓯᒪᓂᕆᐊᖅ. ᐅᖃᐅᑎᐃᓐᓇᕐᓂᑦ ᐃᖃᓗᐃᑦ ᐃᓚᖃᐃᓐᓂᖅᑐᓄᑦ ᐱᔪᓇᐊᕆᖏᑦ ᓇᒧᐃᓐᓂᖅᑐᓂᐊᕐᓂᖏᓐᓄᑦ ᖃᓇᐅᔨᓐᓂᖅ ᐊᑐᖅᑎᑕᐅᔪᑦ

ᑕᐃᑯᓂᖓᑦ ᐱᓇᐊᖅᓯᓐᓂᑦ ᕿᓇᐅᔭᖅᑎᑕᐅᓯᒪᓗᐊᖅᑐᓂᑦ ᑕᒪᓐᓇ ᐱᖃᓯᐅᑎᔪᓗᐊᖅᑐᑦ ᕿᑉᐱᖅᑳᕐᒥᑦ ᖃᑦᑕᖅᑕᕆᐊᖅᑐᖅ. ᐃᖃᓗᐃᑦ: ᐃᖃᓗᐃᑦ ᐊᐅᒃᑑᖅᓴᐃᓯ: ᓇᒻᒥᓂᖅᑐᑦ ᐃᓄᐃᑦ ᐊᑐᖅᑕᐅᓂᕐᒥᓂᖅ ᑲᒪᐅᓂᖅᑐᑦ. ᔫᓇᐃᑦ, ᕿᑉᐱᖅᑳᐅᑦ ᐱᓇᔭᕐᓂᖅ ᑯᐊᐸᐃᑐᖏᑦ, ᑭᖅᓚᐃᑦ ᐊᒻᒪᓗ ᑐᕆᑐ; ᑐᓂᓚᒃ ᑐᖅᓯᐱᓯ, ᔫᓇᐃᑦ, ᑐᐳ ᐅᖃᐅᓯᖅᑐᓂᖅ, ᔫᓇᐃᑦ, ᐊᒻᒪᓗ ᐊᐃᐱᖅ ᐊᑎᐅ ᑯᖓᔪᒥᕆᐊᖅᑐᖅ, ᔫᓇᐃᑦ

ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐱᓕᕆᐊᖏᓐᓂᖅᓄᑦ ᐱᓇᖅᐱᑦ:
ᐅᐸᐅᖅᑕᐅᔪᒥᑦ ᖃᐅᔨᓴᖅᑕᐅᔪᑦ ᐊᒻᒪᓗ ᐱᓕᕆᐊᖑᑕᐅᔪᓗ ᓇᓄᐃᖅᑕᐅᓯᒪᖃᑦᑕᖅᑐᑦ ᐊᐅᔨᒥᑦ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᑦ ᓂᐅᐱᐊᓴᕆᐅᕐᓂᑎᑕᐅᓯᒪᔪᓄᑦ ᓇᓄᐃᖅᑕᐅᓯᒪᔪᑦ ᖃᓄᐃᓐᓂ ᐊᑐᖅᑐᐊᓗᐅᓗᑎᑦ ᑕᓪᓕᒃᑲᓗᐅᓯᒪᓕᓗᐊᓪᓚᑦ ᓯᓇᑐᐃᓐᓇᐃᑦ ᑕᒪᓂ ᐅᐸᐅᖅᑕᐅᔪᒥᑦ ᐊᑐᖅᑕᐅᓇᓯᐊᒃᑲᓗᐅᓯᒪᓂᖏᓐᓄᑦ ᐅᑐᖅᑎᑦᑎᐅᑲᓗᐅᕐᓂᖏᓐᓄᑦ ᑕᐃᒪᐃᓐᓂᖅᑐᑦ, ᔪᓚᐃᒥᑦ ᐊᒻᒪᓗ ᐊᓯᐊᒥᑦ 1989-ᒥᓂᖏᓐᓂ, ᓄᓇᓯᐊᖏᑦ ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓂᕆᓂᖅᑐᑦ ᐊᕝᕙᓯᖅᑕᐅᓗᑎᑦ ᒪᓕᒃᑕᐅᓯᒪᓂᐊᕐᓂᖅᑐᑦ ᓯᓚᕿᐊᓕᒫᓄᑦ ᓂᕐᓚᐅᖅᑐᓂ ᓯᓚᒃᓴᖅᑐᑦ ᖃᐅᔨᓴᕐᐱᒃ ᐊᑐᓂᖅᓴᖅᑐᓗᑎᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ

ᑲᓇᑕᒥᑦ ᖃᐅᔨᓴᖅᑎᕆᓂᖅᑐᑦ ᑲᑎᒪᔨᕐᔪᐊᓄᑦ ᐅᖃᓕᒫᕐᓂᖅᑐᑦ ᐅᐸᐅᖅᑕᐅᓯᒪᔪᖅ ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑐᓂᖅ ᐊᒻᒪᓗ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐊᑐᖅᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ ᓄᓇᒥᐅᑕᐃᑦ ᓂᐅᐱᐊᓴᕆᐅᕐᓂᖅᑐᓂᒃ ᐃᓗᐊᓂᒃ ᐅᑉᐸᓯᐅᑲᓪᓚᑦ. ᑐᕐᓯᖅᑕᐅᓯᒪᔪᑦ ᓄᓇᓯᐊᖏᑦ ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᕆᓂᖅᑐᓄᑦ ᐊᒻᒪᓗ ᓄᓇᓯᐊ ᓚᑉᐸᓪᓕᐅᑎᓂᖅ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᓂᖅᑐᓄᑦ ᓂᐅᐱᐊᓴᕆᐅᕐᓂᖅᑐᑦ ᐊᑐᖅᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ ᖃᐅᔨᓴᕐᐱᒃᓯᓂᖅ ᐱᓕᕆᓂᕐᓗᓂᖅ ᓯᕗᓂᖅᑲᖏᑦ ᐱᓇᓱᐊᕐᓂᐊᖅᑐᓂᖅ... ᐅᖃᐅᓯᖑᓂᐊᖅᑐᖅ ᖃᐅᔨᓴᖅᑐᓂᖅ ᐊᒻᒪᓗ ᐱᓕᕆᐊᓂᖅ ᐊᑐᖅᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ ᐅᐸᐅᖅᑕᐅᔪᒥᑦ.

ᓄᓇᓯᐊᖏᑦ ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᕆᓂᖅᑐᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᓗᑎᑦ ᖃᐅᔨᓴᐱᐅᑦ ᐱᓇᓱᐊᕐᓂᖅᑯᑦ ᐊᒻᒪᓗ ᕿᓇᐅᔭᓕᐅᕐᓂᖅᓴᓕᐅᕐᓂᖅᓴᐅᑎᑕᐅᓯᒪᓕᖅᑐᑦ ᑲᑐᔾᔨᖅᑕᐅᓯᒪᓗᑎᑦ, ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐊᑐᖅᑐᓂᕈᑎᖃᕐᓂᕐᓂᖅᑐᑦ (Technology Brokers Inc.) ᑲᑐᔾᔨᖅᑕᐅᔪᑦ. ᑕᐃᒫᒃ ᐅᒥᐊᓚᐅᑦ ᖃᐅᔨᓴᕐᐱᖏᑦ ᐊᑐᖅᑐᑦ ᓇᓄᐃᖅᑕᐅᓯᒪᔪᐃᓐᓇᐅᕆᖅᑐᑦ. ᓄᓇᓯᐊᖏᑦ ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᕆᓂᖅᑐᑦ ᐊᒻᒪᓗ ᐊᕕᖏᓐᓗ ᐅᐸᐅᖅᑕᐅᔪᒥᑦ ᖃᐅᔨᓴᐱᐅᔪᖅ ᓴᓇᒥᓂᖏᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᓗᐃᓐᓇᕐᓂᖅᑐᑦ ᖃᐅᔨᓇᓯᐊᓗᑎᑦ ᖃᓄᐃᑐᒥ ᐅᐸᓗᓕᐃᔭᐅᑎᓐᓂᑦ ᐊᑐᓗᐊᓪᓚᑦ ᓄᓇᕐᔪᐊᖅᑐᑦ ᓂᐅᐱᐊᓴᖅᑐᑦ ᐊᑐᖅᑕᐅᓯᒪᓂᐊᖅᑐᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ ᖃᐅᔨᓴᐱᐅᓂᐊᖅᑐᖅ. ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᕆᓂᖅ ᕿᓂᖅᓯᒪᓕᖅᑐᑦ ᑲᒪᔪᐃᓐᓇᕐᓂᐅᑲᕿᓐᓂ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐱᓕᕆᐊᖑᑕᐅᓯᒪᓂᐊᕐᓂᖏᓐᓄᑦ ᐱᓇᓱᐊᕐᓯᒪᓂᐊᖅᑐᖅ

ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᐱᓕᕆᐊᖏᓐᓂᖅᓄᑦ ᐱᓇᐊᖅᓯᓂᖅᑕᐅᓯᒪᓂᖅᑐᑦ ᐊᒥᓱᓂᖅ ᓄᓕᐊᕐᓂᖅᑐᖅ ᐅᐸᐅᖅᑕᐅᔪᒥᑦ ᓴᓇᔨᓂᓐᓄᑦ ᐱᓇᐊᖅᓯᒪᓕᖅᓯᓂᐊᖅᑐᑦ ᐊᒥᓱᓂᖅᐅᓂᐊᖏᑦ ᐃᑲᔪᖅᑕᐅᓯᒪᓂᖅᑐᑦ ᐱᓇᐊᖅᓯᒪᓂᐊᖅᑕᖏᑦ ᐃᓱᒪᒋᔪᑐᐃᓐᓇᕐᓂᖅᑐᑦ ᐊᒻᒪᓗ ᓂᐅᐱᐊᓴᕆᐅᕐᓇᓯᐊᕐᓂᖅᑐᓗ. ᑕᒪᓐᓇ ᐱᓇᐊᖅᓯᒪᓂᖅᑐᑦ ᖃᐅᔨᓂᖅ ᐊᒻᒪᓗ ᐱᓕᕆᐊᓂᖅ ᐊᑐᖅᓯᒪᔪᓐᓇᖅ ᓄᓇᓯᐊᖏᑦ ᑲᑎᖓᔪᓇᖅᑐᖅ ᐱᓕᕆᐊᓂᖅᓯᐊᓂᖅ ᐱᓕᕆᖅᓯᒪᓂᐊᒥᓂᖅ. ᐱᓇᐊᖅᐃᑦ ᐊᑐᑎᖃᕐᓇᖅᑐᑦ ᓇᓄᐃᖅᑕᐅᓗᑎᑦ, ᓇᓂᓯᓂᐊᖅᑐᑦ ᕿᓇᐅᔭᖅᑎᑎᓕᕆᔪᖅ ᓇᒻᒥᓂᖅᑐᑦ ᐊᒻᒪᓗ ᓚᑉᐸᓪᓕᐅᑎᓂᖅᓯᒪᔪᖅ ᑕᒪᓐᓇ ᐱᓇᐊᖅᓯᒪᓂᐊᕐᓂᖅ ᑲᒪᔪᐃᓐᓇᕐᓂᐊᕐᓂᖅᑯᑦ ᐊᒻᒪᓗ ᐱᓕᕆᐊᖑᑕᐅᓯᒪᓂᐊᕐᓂᖅᑯᑦ ᐊᑐᖅᑕᐅᓯᒪᓂᐊᖅᑐᑦ.

ᐃᒥᑕᐅᓯᒪᖃᑦᑕᖅᑐᑦ ᑲᒪᔪᐃᓐᓇᕐᓂᐊᖅᑐᓄᑦ ᐱᓇᐊᖅᓯᒪᔪᑦ:
ᐅᐸᐅᖅᑕᐅᔪᒥᑦ ᐅᒪᔪᓂᑦ ᖃᐅᔨᓴᖅᑎᕆᓂᖅᑐᓂ ᐱᖃᓯᐅᑕᐅᓯᒪᔪᑦ, ᓯᓇᑐᐃᓐᓇᕐᓂᑦ ᖃᐅᔨᓴᖅᑎᕆᓂᖅ ᕿᓇᐅᔭᖅᑕᐅᓯᒪᔪᖅ ᓄᓇᓯᐊᖏᑦ ᐊᑐᖅᑕᐅᓯᒪᔪᓐᓇᖅᑐᑦ ᓯᓇᑐᐃᓐᓇᐃᑦ ᓴᓇᔪᖅᑲᓂᖅᓯᒪᓂᖅᑐᑦ ᐊᑐᖅᑕᐅᓯᒪᓂᖏᓐᓄᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᓂᐊᕐᓂᖅᑐᑦ. ᐊᐳᐃᓚᐅ ᓇᒻᒥᓂᖅᑐᑦ ᐃᑲᔪᖅᑕᐅᓯᒪᓂᐊᖅᑐᑦ ᑲᑐᔾᔨᖅᑕᐅᓯᒪᔪᖅ ᓯᓇᑦᑕᖅᑕᐅᓯᒪᓂᐊᖅᑐᖅ ᐊᑐᖅᑕᐅᓯᒪᓕᖅᑐᑦ ᓯᓇᑐᐃᓐᓇᐃᑦ ᓴᓇᔪᖅᑲᓂᖅᓯᒪᓂᖅᑐᑦ ᑕᒪᓂ ᔫᓇᐃᑦ ᒥᑦ.

ᓄᓇᕗᑦ ᑲᑎᕋᐅᓯᖅ ᐊᑐᕐᓂᖅ ᐃᓄᐃᑦ ᐊᑐᕐᓂᖅ ᐊᑐᕐᓂᖅ ᐃᓄᐃᑦ

Wales Prince of

ᐊᑕᐃᒪᓕᕆᔨᒃᑯᑦ ᐊᑐᕐᓂᖅ ᐊᓂᒍᓐᓇᖅᑐᑦ ᐃᓄᐃ

...ᐃᓕᓐᓂᕐᒪᑦᑎᐊᖅᑕᐅᓯᖅᑕᖅᑐᑦ.

ᐃᓕᓴᕐᓂᐊᕐᓗᒃ ᐃᓄᒃᑎᑐᑦ ᐃᓕᓐᓂᐊᖅᑐᑦ